NOAA Research in Wisconsin

WI-1 through 9 (Statewide)

Climate and Global Change Program

NOAA is responsible for providing climate information to the nation in order to prepare and protect climate sensitive sectors of society and the economy. To carry out this mission, NOAA's Climate and Global Change Program conducts focused scientific research to understand and predict variations of climate. The program is comprised of a number of research elements, each focusing on a specific aspect of climate variability. Taken together, this research contributes to improved predictions and assessments of the effects of climate variability and change on different environments over a continuum of time scales from season to season, year to year, and over the course of a decade and beyond. This research is accomplished through the strong support of the academic and private sectors, as well as NOAA and other federal laboratories. In FY 2001, NOAA's Climate and Global Change Program provided approximately $115,000 in support of climate research in the State of Wisconsin. http://www.ogp.noaa.gov

WI-1, 2, and 4 through 9 (Based in Madison - serves entire Wisconsin coastal zone)

National Sea Grant College Program
University of Wisconsin Sea Grant College Program

Established in 1968, the University of Wisconsin Sea Grant College Program supports a statewide program of basic and applied research, education, and technology transfer dedicated to the wise stewardship and sustainable use of Great Lakes and ocean resources. A leading member of the Great Lakes Sea Grant Network, it is part of a national network of 30 university-based programs funded through the National Sea Grant College Program with matching state and private contributions. More than 150 faculty, staff, and students are currently participating in UW Sea Grant-funded projects at seven UW System campuses (UW-Madison, UW-Milwaukee, UW-Green Bay, UW-La Crosse, UW-Stevens Point, UW-Manitowoc, and UW-Superior). Advisory Services specialists around the state convey research needs and research results between the academic community and coastal resource users. During 2002-04, UW Sea Grant is supporting 34 research, outreach, and education projects designed to enhance Great Lakes sport and commercial fisheries, advance Wisconsin's multimillion-dollar aquaculture industry, respond the invasions by zebra mussels and other costly foreign aquatic nuisance species, explore aquatic applications of biotechnology and other advanced technologies, conduct Great Lakes-related socioeconomic studies, investigate the potential health risks of scuba diving, and track the sources and cycling of PCBs and other toxic contaminants in Great Lakes systems. In FY 2001, the Wisconsin Sea Grant projects received approximately $2 million in funding from the National Sea Grant program. For more information please visit http://www.seagrant.wisc.edu

WI-1, 4, and 5 (Kenosha and Milwaukee)

Great Lakes Environmental Research Laboratory
Real-Time Meteorological Observation Network

The Great Lakes Environmental Research Laboratory's Marine Instrumentation Laboratory has deployed and is maintaining a real-time network of shore-based meteorological instrument packages including locations at Milwaukee and Kenosha. The meteorological observations obtained from the network are being used in GLERL's Great Lakes Coastal Forecasting System to improve nowcasts and forecasts of wind, waves, water levels, and circulation. In addition, the National Weather Service has committed resources to support the network and forecast offices in Chicago, Milwaukee, and Grand Rapids are using the observations to improve marine forecasts and warnings. The Milwaukee station measures/records wind speed, wind gust, wind direction, and air temperature at 5- minute increments and this information is updated hourly at http://www.glerl.noaa.gov/metdata/mil/ . The Kenosha station measures/records wind speed, wind gust, wind direction, and air temperature at 5-minute increments and this information is updated hourly on the web.
http://www.glerl.noaa.gov/metdata/ken/

WI-1 and 4 through 9 (Lake Michigan and Lake Superior)

National Undersea Research Center for the Northeastern United States and Great Lakes
National Undersea Research Program

The National Undersea Research Center for the Northeastern United States and Great Lakes is located at the University of Connecticut, Avery Point in Groton, Connecticut. It is one of six regional centers supported by the National Undersea Research Program (NURP). The Center supports and conducts undersea research in the waters off the northeast coast of the United States and the Great Lakes. The center provides science and operational support (occupied submersibles, remotely operated vehicles and mixed gas diving technologies) and funding for reviewed projects within this region. The Center supports research on the physical, chemical, and biological factors controlling the cycling and fates of organic contaminants and heavy metals (trace metals) at the sediment/water interface and their ultimate impacts on biological productivity. Also receiving special attention are the habitat characteristics controlling the recruitment and population dynamics of recreational and commercial species of fish, including "pest" species. The FY 2001 funding for the Center totaled $1.36 million. For more information please visit http://www.nurc.uconn.edu

WI-1 and 4 through 9 (Lake Michigan and Lake Superior)

Great Lakes Environmental Research Laboratory
Great Lakes Research

The Great Lakes Environmental Research Laboratory (GLERL) carries out research and provides scientific products, expertise, and services required for effective management and protection of Great Lakes and coastal ecosystems. As part of the mission of NOAA and the U.S. Department of Commerce, GLERL science provides for protection of life and property, economic well-being, and sustained ecosystem health. With a wide array of scientific disciplines on staff, and an ecosystem-level focus, GLERL contributes unique capabilities in support of intelligent and cost-effective Great

Lakes and coastal resource management. GLERL is pursuing focused research in areas including aquatic contaminants and biogeochemistry; invasive species, ecosystem dynamics and long-term monitoring. In a new and unique effort started in February 2001, GLERL now has a Great Lakes Sea Grant Extension Agent onsite to support and promote increased communication and cooperation among GLERL and the seven Great Lakes Sea Grant Programs in the region, including the Wisconsin Sea Grant program. By making GLERL scientific products, services, and expertise more widely available to the extensive Great Lakes Sea Grant Network, the agent can rely on the Network's vast outreach, communications, and education infrastructure to furnish constituents with a wider information base. For more information please visit http://www.glerl.noaa.gov

WI-1, 4, 5, and 9 (Southern Lake Michigan)

Great Lakes Environmental Research Laboratory
Episodic Events Great Lakes Experiment

The Episodic Events Great Lakes Experiment (EEGLE) Program is a five-year study of spring storm-induced erosion and transport of fine sediment material in Lake Michigan's southern basin. The storm episodes generate winds, waves and currents, and a heavy sediment load that can be identified and tracked by satellite imagery. Fine sediment particles often bind with contaminants and nutrients and their suspension and transport elsewhere in the Lake may have important implications for ecosystem structure and function. EEGLE is a collaborative project that includes GLERL scientists and university scientists from both inside, and outside, the Great Lakes region. The program is supported by funding from NOAA and the National Science Foundation. For more information please visit http://www.glerl.noaa.gov/eegle/

WI-1, 4, 5, 6, 8, and 9 (Lake Michigan)

Great Lakes Environmental Research Laboratory
Lake Michigan Mass Balance Study

Scientists from NOAA's Great Lakes Environmental Research Laboratory are participating in an EPA study that seeks to identify the sources, pathways and fate of contaminants cycling through the Lake Michigan ecosystem. Four major chemicals are being studied; polychlorinated biphenyls (PCBs), atrazine (an agricultural herbicide), trans-nonachlor (a pesticide), and mercury. The Lake Michigan Mass Balance focuses on where these chemicals are entering the Lake and what happens to them as they move through the ecosystem. This study will identify relative pollutant loads from rivers, air deposition, and sediment resuspension, and will allow prediction of the benefits associated with reducing such loads. For more information please visit http://www.glerl.noaa.gov

WI-2 (Wisconsin)

Air Resources Laboratory
Integrated Surface Irradiance Study

Solar radiation is the driving energy for the geophysical and biochemical processes that control weather and life on earth, so understanding the global surface energy budget is key to understanding

climate. Because it is impractical to cover the earth with monitoring stations, the answer to global coverage lies in reliable satellite-based estimates. Accurate and precise ground-based measurements in differing climatic regions are essential to refine and verify the satellite-based estimates, as well as to support specialized research. The Integrated Surface Irradiance Study (ISIS) is a continuation of earlier NOAA surface-based solar monitoring programs in the visible and ultraviolet wavebands. ISIS provides basic surface radiation data with consistency and accuracy. NOAA's Air Resources Laboratory operates the NOAA national broadband solar radiation network, including a station located in Madison that monitors incoming radiation. For more information please visit http://www.atdd.noaa.gov

WI-3, 4, 7, 8 (Blue River, Milwaukee, Superior, and Sturgeon Bay)

Forecast Systems Laboratory
GPS Meteorological Observing Systems

NOAA's Forecast Systems Laboratory (FSL) operates a rapidly expanding network of GPS Meteorological (GPS-Met) Observing Systems to monitor the total quantity of precipitable water vapor in the atmosphere. Currently, there are 93 systems over the contiguous 48 states and Alaska, and plans are being made to extend these observations to Hawaii, Puerto Rico, the Caribbean Islands, and Central America. Water vapor is an important but under-observed component of the atmosphere that plays a major role in severe weather events and the global climate system. GPS-Met systems provide accurate water vapor measurements under all weather conditions, including thick cloud cover and precipitation, and do so at very low cost. The major reason why this system is so economical is that the network is being developed by FSL in cooperation with federal, state and local government agencies, universities, and the private sector. The GPS stations provide high-accuracy surveying and navigation services for National defense, automated agriculture, safe land and marine transportation, government infrastructure management, and 911 emergency response services. Fortuitously, these systems can also be used for meteorology with the addition of surface weather sensors. GPS-Met systems in Wisconsin are operated by NOAA near Blue River, and by the U.S. Coast Guard near Milwaukee, Sturgeon Bay, and Superior. For more information please visit http://www.gpsmet.noaa.gov/jsp/index.jsp

WI-7 (Chequamegon National Forest)

Climate Monitoring and Diagnostic Laboratory
Tall Tower Measurements

NOAA's Climate Monitoring and Diagnostic Laboratory (CMDL) operates trace gas monitoring sites at tall television transmitter towers in Wisconsin and Texas. The sites were established to extend CMDL's monitoring network into the interior of North America in order to provide data to aid estimation of the net carbon balance of the continent. Variations of trace gases, especially carbon dioxide (CO2), are largest near the ground, so we utilize existing tall (> 400m) transmitter towers as platforms for in situ and flask sampling for atmospheric trace gases. The tower site in Wisconsin is the WLEF-TV transmitter located within the Chequamegon National Forest, near Park Falls. The tower is owned by the State of Wisconsin Educational Communications Board, and access is provided for CMDL activities free of charge, except the cost of utilities. CMDL monitors carbon

dioxide (CO_2) concentrations on the tower at several heights up to 400 m above the ground, and also measures wind speed and direction, temperature, humidity, rainfall, solar radiation and barometric pressure. In addition, the exchange of CO_2 between the atmosphere and the forest is measured in order to quantify the role of the forest in the regional CO_2 budget. CMDL is collaborating with the USDA Forest Service Forest Sciences Laboratory (Rhinelander, WI) on the measurements at this site. Work by CMDL at the Wisconsin tower has been the catalyst for a larger program in the region to understand the carbon balance of the forest. This program, called the Chequamegon Ecosystem-Atmosphere Study (ChEAS), is funded by NOAA, DOE, NASA and USDA and involves researchers from several universities and federal laboratories. The goal is to determine how management (e.g., selective harvest), past land use, and climate changes affect the carbon balance of the forest. More information, photos and links can be found on the CMDL website http://www.cmdl.noaa.gov and at the ChEAS website: http://cheas.psu.edu

For further information about these and other NOAA programs, please contact NOAA's Office of Legislative Affairs at (202) 482-4981.

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